

CLAIMS

What is claimed is:

1. A liquid crystal device having a first substrate and a second substrate, which are disposed to oppose each other, and liquid crystal enclosed in a gap between the first substrate and the second substrate, comprising:

a first transparent electrode provided on the first substrate;  
a first wiring provided on the second substrate; and  
a conductive material connecting the first transparent electrode and the first wiring; wherein the first wiring comprises  
a metal oxide film and a conductive film having a resistance lower than that of the metal oxide film.

2. The liquid crystal device according to Claim 1, wherein the conductive film is formed on an area other than the portion connecting with the conductive material.

3. The liquid crystal device according to Claim 1, further comprising a driver IC provided on the second substrate for driving the liquid crystal;

wherein the driver IC comprises an output side bump for supplying a signal,

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the output side bump is connected to the first wiring, and  
the conductive film is formed on an area other than the portion  
connecting with the driver IC.

4. The liquid crystal device according to Claim 1, further  
comprising a second wiring which is provided on the second substrate and  
which comprises a metal oxide film and a conductive film having a  
resistance lower than that of the metal oxide film; and

a driver IC provided on the second substrate for driving the liquid  
crystal;

wherein the driver IC comprises an input side bump for inputting a  
signal,

the input side bump is connected to the second wiring, and

the conductive film included in the second wiring is formed on an  
area other than the portion connecting with the driver IC.

5. The liquid crystal device according to Claim 4, further  
comprising a first protruding area which is provided in the vicinity of one  
edge of the second substrate and which does not overlap with the first  
substrate; and

a second protruding area which is provided in the vicinity of another  
edge, intersecting said one edge, of the second substrate, and which does

not overlap with the first substrate;

wherein the driver IC is provided on the first protruding area, and  
the second wiring is provided on the first protruding area and on the  
second protruding area.

6. The liquid crystal device according to Claim 5, further  
comprising an external circuit substrate connected to the second wiring on  
the second protruding area;

wherein the conductive film included in the second wiring is formed  
on an area other than the portion connecting with the external circuit  
substrate.

7. The liquid crystal device according to Claim 1, further  
comprising a second transparent electrode provided on the second substrate;  
and

a driver IC connected to the second transparent electrode.

8. The liquid crystal device according to Claim 7, further  
comprising a second wiring which is provided on the second substrate, which  
comprises a metal oxide film and a conductive film having a resistance  
lower than that of the metal oxide film, and which is connected to the  
driver IC;

a first protruding area which is provided in the vicinity of one edge of the second substrate and which does not overlap with the first substrate; and

a second protruding area which is provided in the vicinity of another edge, intersecting said one edge, of the second substrate, and which does not overlap with the first substrate;

wherein the driver IC is provided on the first protruding area and comprises an input side bump for inputting a signal from the second wiring, and

the second wiring is provided on the first protruding area and on the second protruding area.

9. The liquid crystal device according to Claim 8, wherein the conductive film included in the second wiring is formed on an area other than the portion connecting with the driver IC.

10. An electronic apparatus comprising a liquid crystal device according to Claim 1.

11. A liquid crystal device having a first substrate and a second substrate, which are disposed to oppose each other, and liquid crystal enclosed in a gap between the first substrate and the second substrate,

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comprising:

a first transparent electrode provided on the first substrate;  
a first wiring provided on the second substrate;  
a conductive material connecting the first transparent electrode and  
the first wiring;

a second transparent electrode provided on the second substrate; and  
a second wiring which is provided on the second substrate and which  
is connected to the second transparent electrode; wherein at least one of  
the first and the second wirings comprises a metal oxide film and a  
conductive film having a resistance lower than that of the metal oxide  
film.

12. The liquid crystal device according to Claim 11, further  
comprising a driver IC provided on the second substrate for driving the  
liquid crystal;

wherein the driver IC comprises an output side bump for supplying a  
signal, and

the output side bump is connected to the first or the second wiring.

13. The liquid crystal device according to Claim 11, further comprising:

an external circuit substrate supplying signals to each of the first and the second wirings.

14. A liquid crystal device having a first substrate and a second substrate, which are disposed to oppose each other, and liquid crystal enclosed in a gap between the first substrate and the second substrate, comprising:

a first protruding area which is provided in the vicinity of one edge of the second substrate and which does not overlap with the first substrate;

a second protruding area which is provided in the vicinity of another edge, intersecting said one edge, of the second substrate, and which does not overlap with the first substrate; and

a wiring which is provided on the first protruding area and on the second protruding area;

wherein the wiring comprises a metal oxide film and a conductive film having a resistance lower than that of the metal oxide film.

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Combination  
device

15. A liquid crystal device having a first substrate and a second substrate, which are disposed to oppose each other, and liquid crystal enclosed in a gap between the first substrate and the second substrate, comprising:

a plurality of first transparent electrodes provided on the first substrate;

a conductive shading film which is provided between the first transparent electrodes adjacent to each other and which is not in electrical contact with the first transparent electrodes; and

a wiring which is provided on the first substrate and which are connected to the first transparent electrodes; wherein the wiring comprises substantially the same layer as that of the first transparent electrodes and substantially the same layer as that of the shading film.

16. A liquid crystal device having a first substrate and a second substrate, which are disposed to oppose each other, and liquid crystal enclosed in a gap between the first substrate and the second substrate, comprising:

a plurality of first transparent electrodes provided on the first substrate;

a conductive shading film which is provided between the first transparent electrodes adjacent to each other and which is not in

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electrical contact with the first transparent electrodes;

a wiring provided on the first substrate;

a second transparent electrode provided on the second substrate; and

a conductive material connecting the wiring and the second transparent electrode; wherein the wiring comprises substantially the same layer as that of the first transparent electrodes and substantially the same layer as that of the shading film.

17. A method for manufacturing a liquid crystal device having a first substrate and a second substrate, which are disposed to oppose each other, and liquid crystal enclosed in a gap between the first substrate and the second substrate, comprising:

a step of providing a first transparent electrode on the first substrate;

a step of providing a first wiring on the second substrate; and

a step of connecting the first transparent electrode and the first wiring by a conductive material; wherein the first wiring comprises

a metal oxide film and a conductive film having a resistance lower than that of the metal oxide film.



18. A method for manufacturing a liquid crystal device having a first substrate and a second substrate, which are disposed to oppose each other, and liquid crystal enclosed in a gap between the first substrate and the second substrate, comprising:

a step of providing a plurality of first transparent electrodes on the first substrate;

a step of providing a conductive shading film between the first transparent electrodes adjacent to each other so as not to be in electrical contact with the first transparent electrodes; and

a step of providing wirings connected to the first transparent electrodes on the first substrate; wherein the wirings are formed so as to comprise substantially the same layer as that of the first transparent electrodes and substantially the same layer as that of the shading film.

19. A method for manufacturing a liquid crystal device having a first substrate and a second substrate, which are disposed to oppose each other, and liquid crystal enclosed in a gap between the first substrate and the second substrate, comprising:

a step of providing a plurality of first transparent electrodes on the first substrate;

a step of providing a conductive shading film between the first transparent electrodes adjacent to each other so as not to be in electrical

contact with the first transparent electrodes; and

a step of connecting a wiring provided on the first substrate and a second transparent electrode provided on the second substrate by a conductive material;

wherein the wiring is formed so as to comprise substantially the same layer as that of the first transparent electrodes and substantially the same layer as that of the shading layer.

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